

PRECISION FEED MANAGEMENT

By Tom Tylutki and Paul Cerosaletti

Precision feed management benefits both your dairy's bottom line and the environment

Save money with sound decisions

Ground corn costing as much as \$230 per ton, soy meal higher than \$350, corn silage above \$45 and dicalcium phosphate (dical) greater than \$1,000. Does this sound familiar? Precision feed management (PFM) is the only option to dealing with the "new normal" cost of doing business.

Historically when grain was relatively cheap, dairies could easily feed more grain, get more milk most of the time and be able to pay for it. Now with current feed prices and a milk:feed ratio lower than

2.0, you must carefully evaluate these changes.

Most dairy producers have figured out that old benchmarks for feed costs don't apply anymore. On top of that, feed cost per ton, per cow and per hundredweight are all archaic measures that can lead managers to make bad decisions: Those measures don't account for milk income produced by a ration.

In PFM feed costs are evaluated on an income-over-purchased-feed costs (IOPFC) basis. It's the residual income you have to pay all your other bills and live off after paying for feed. It takes into account the milk produced from the feed fed and is, therefore, a more accurate measure of "return on ration investment."

Calculate your IOFC

To determine your income-over-feed costs, plug your numbers into the formula here:

Net mailbox milk price: _____ \$/cwt.
Milk shipped per cow per day: _____ lbs.
Gross income: (net mailbox x lbs./100): _____ \$/cow/day
Total feed costs (or just purchased): _____ \$/month
Feed cost per cow per day (Total per month / 30 / number cows):
_____ \$/cow/day
IOFC (Gross Income – Feed cost per cow per day): _____ \$/cow/day.

Maximize this number!

An IOPFC example

Recently we sat down with a dairy manager to discuss ration options. Once the diet was modeled using AMTS.Cattle, an implementation of the Cornell Net Carbohydrate and Protein System (CNCPS) version 6.1, it was clear metabolizable protein was limiting production.

Two ingredients were considered at the time: bypass soybean meal at \$483 per ton and dried distillers grains (DDG) at \$235 per ton. Evaluating these options with the model revealed that a half pound of the bypass soy would cost \$0.121 per cow and increase milk 3 pounds. One pound of DDG, costing \$0.118 per cow, would increase milk 2.5 pounds.

If milk is \$20, using the bypass soy results in a

Please turn to page 20



In a two-year study, PFM dairies produced 1,400 pounds more milk per cow with operating expenses \$1.33 per cwt. lower compared to non-PFM dairies.

FYI

■ Tom Tylutki is president of Agriculture Modeling and Training Systems (AMTS) LLC, located in Cortland, N.Y. AMTS is a nutrition software and consulting company. Reach him at 607-423-3327. Email: tom@agmodelsystems.com. Or see the company's website: www.agmodelsystems.com

■ Paul Cerosaletti is a dairy and field crops specialists with Cornell Cooperative Extension in Delaware County. Reach him at 607-865-6531. Email: pec6@cornell.edu

THE MANAGER

Save money with sound decisions

continued from page 17

nearly 10-cent higher IOPFC per cow. That's despite DDG's appearing to be a better buy on a cost per ton basis. Using IOPFC leads to the more profitable decision to feed the bypass soy product.

Cost wasn't the only consideration. The current ration already had high levels of DDG and adding more might depress butterfat levels because of excessive dietary unsaturated fat. Also, it could create poorer amino acid patterns, potentially decreasing milk protein and increasing phosphorus (P) intakes, which are already in excess of dietary P requirements.

IOPFC applies to field crops, too. Consider nitrogen (N) fertilization for corn and grasses. N prices are 400% higher today compared to five years ago. Farmers have made knee-jerk reactions to \$800 urea and eliminated N applications on grasses this year.

Farmers may have forgotten that N fertilization, judiciously used in combination with other N sources such as legumes, manure and sod breakdown, has large returns on investment. Without adequate N applications, some dairies are now forage deficient, and the forage they have is lower in protein. These dairies are forced into purchasing forage and more grain. Plus, they may have lower total milk production.

Does PFM work?

As dairies have implemented PFM in various parts of New York,

we've seen positive economic and environmental impacts. Some early work showed more than a 30% increase in IOPFC when PFM was fully implemented. At the same time, manure N was reduced 17% and P reduced by 28%.

For an idea of the P reduction, consider that dical is 20% phosphorus. A 28% reduction in manure P excretion equates to approximately 5.5 tons less dical being purchased per 100 cows per year. That's a savings of more than \$5,500 to the dairy while decreasing P imports to the farm by 2,200 pounds.

One case study dairy has continued to expand its land base to begin growing high moisture ear corn to meet a portion of its grain needs. This has allowed the dairy to use its land more efficiently for manure application and crop rotations. Currently, the dairy's lactating herd's diet is 67% homegrown feed compared to 10 years ago when it was 42%.

A two-year Cornell Dairy Farm Business Summary study of years 2005 and 2006 indicates that, on average, PFM dairies produced 1,400 pounds more milk per cow but with operating expenses \$1.33 per cwt. lower compared to non-PFM cohorts.

These same PFM dairies reduced manure N and P excretions 10 and 25%, respectively, while reducing on-farm accumulations of these nutrients by more than 50%.

Precision feed management is a proven system. For successful implementation dairy managers must take charge of the process on their dairies. Use the benchmarks presented in *The Manager* to monitor and drive the process. ■

What you need to put PFM into practice

continued from page 16

most limiting factors to delivering quality forage to their cows. Then they must decide what to do to improve in those areas. Devise a plan after seeking input from family, employees, peers and advisers.

Remember, it's your dairy and your goals; you drive the process. Don't be tempted to bite off more than you can handle. Finally, institute a system to monitor your changes to ensure you're moving in the right direction – toward precision feed management. Consistent movement toward your goal will result in success. ■

Nutrients in balance

The Delaware County Precision Feed Management (PFM) project has measured the mass nutrient balance impact on a number of dairies over several years. On average, before PFM, dairies ended each year with 55 pounds more phosphorus (P) per cow than when the year began. To prevent losses to the environment, this extra P must be carefully managed.

After several years of progress toward PFM goals, the same farms averaged only 19 pounds of P per cow per year – a 66% decrease. Similar reductions were observed for nitrogen (N). With less than half the nutrients to deal with, nutrient management best management practices (BMPs) should be more effective.

What is precision feed management?

continued from page 15

Feed, crop and cow advisers know the technical details of what a dairy must change to achieve PFM benchmarks. But managers must drive the process by communicating their goals, asking questions, making decisions and leading the implementation.

Implementing PFM revolves around four actions: monitor, assess, plan and implement. Monitoring requires on-farm records including feed and herd production testing. Effective assessment and planning tactics for implementation result from periodic meetings with farm advisers.

On the crop side, fall or winter meetings with crop advisers and nutritionists prepare managers for the following year's crop season. It's critical that managers integrate ration needs, such as ensuring adequate feed inventory required to feed a higher forage diet, with crop planning. This is best accomplished by getting your nutritionist and crop consultant in the same room at least once a year.

PFM is a continuous process to improve cropping, feeding and nutrient management. It takes time to implement. Our experience suggests that a dairy may take three to five years to work through the web of major changes required to implement PFM. That's followed by diligent monitoring and minor corrections. ■